

IN THE CLAIMS

Please amend claims 1, 4, 10, and 22 as indicated below.

Please add new claim 23 as indicated below.

Q1 Sub 31/ 1. (Currently Amended) An iterative computer-implemented process for creating an entity that approximately satisfies a design requirement that at least one characteristic is not in ~~the prior~~ a preexisting art, the process invoking iterations, each iteration comprising:

selecting at least one candidate entity, wherein selection is more likely for a first candidate entity ~~that satisfies the~~ to satisfy a design requirement ~~to a greater degree than another~~ a second candidate entity and for a the first candidate entity ~~that avoids prior~~ to avoid a preexisting art to a lesser degree than another the second candidate entity; and

creating at least one new candidate entity by creating a variation in the at least one candidate entity.

2. (Original) The process defined in Claim 1 wherein creating at least one new candidate entity comprises mutating the at least one candidate entity.

3. (Original) The process defined in Claim 2 wherein selecting the at least one candidate entity is performed by simulating annealing.

4. (Currently Amended) The process defined in Claim 2 wherein selecting at least one candidate ~~controller~~ is performed by hill climbing.

5. (Original) The process defined in Claim 1 wherein the at least one candidate entity is a member of a population of entities.

6. (Original) The process defined in Claim 5 wherein creating at least one new candidate entity comprises performing a crossover operation among a group of candidate entities, the group of entities comprising the selected entity and at least one other entity from the population, the at least one new coordinate entity created by crossover comprising at least a portion of the selected entity and at least a portion of that at least one other entity.

7. (Original) The process defined in Claim 1 further comprising performing genetic programming operations.

8. (Original) The process defined in Claim 1 further comprising genetic algorithms operations.

9. (Original) The process defined in Claim 1 wherein the at least one of candidate entity comprises at least one externally invokable sub-entity and at least one internally invokable sub-entity, the at least one externally invokable sub-entity capable of including at least one invocation of the at least one internally invokable sub-entity.

10. (Currently Amended) The process defined in Claim 9 wherein the at least one of candidate entity comprises at least two internally invokable sub-entities and wherein at least one of the at least two internally invokable sub-entities includes at least one invocation of another of the at least two internally invokable sub-entities.

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11. (Original) The process defined in Claim 9 wherein the at least of one candidate entity has at least one internally invokable sub-entity that includes at least one invocation of itself.

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12. (Original) The process defined in Claim 1 wherein creating at least one new candidate entity comprises performing an architecture-altering operation involving at least one internally invokable sub-entity of the at least one selected entity.

13. (Original) The process defined in Claim 1 further comprising creating the at least one candidate entity by a random process.

14. (Original) The process defined in Claim 1 further comprising supplying, from an external source, the at least one candidate entity partially satisfying the design requirement or that only partially reads on the prior art.

15. (Original) The process defined in Claim 1 wherein selecting a candidate entity that more closely satisfies the design requirement is ascertained by evaluating the candidate entity by simulating the candidate entity.

16. (Original) The process defined in Claim 1 wherein selecting the candidate entity that more closely satisfies the design requirement is ascertained by evaluating the candidate by observing a physical realization representing the candidate entity.

17. (Original) The process defined in Claim 1 wherein the candidate entity conforms to a constrained syntactic structure.

18. (Original) The process defined in Claim 1 wherein the candidate entity comprises an electrical circuit.

19. (Original) The process defined in Claim 1 wherein the candidate entity comprises a controller.

20. (Original) The process defined in Claim 1 wherein the candidate entity comprises an antenna.

21. (Original) The process defined in Claim 1 wherein the candidate entity comprises a mechanical system.

22. (Currently Amended) An iterative computer-implemented process for creating an entity that approximately satisfies a design requirement that includes technical requirements and dissimilarity to a preexisting technology, the process invoking iterations, each iteration comprising:

- producing a structure;
- determining behavior and characteristics of the structure;
- comparing the structure to a preexisting technology;
- determining fitness of the structure by combining compliance with the technical requirements and dissimilarity to the preexisting technology.

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23. (New) A machine-readable medium having stored thereon executable code which causes a machine to perform a process, for creating an entity that approximately satisfies a design requirement that at least one characteristic is not in a preexisting art, the process invoking iterations, each iteration comprising:

selecting at least one candidate entity, wherein selection is more likely for a first candidate entity to satisfy a design requirement than a second candidate entity and for the first candidate entity to avoid a preexisting art than the second candidate entity; and

creating at least one new candidate entity by creating a variation in the at least one candidate entity.